

# Photo Renamer

*A Program by Nicholas Harrell, for Duraclean*

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*This document provides an in-depth, semi-technical description of the Photo Renamer program. If you are looking for simple help with using the program, click on the "Help" button inside the program located near the "Execute" button.*

## **Purpose**

Among the many functions of project coordinators at restoration contractors using DASH is the routine downloading and digital filing of photographs. These photographs are uploaded to DASH by technicians at job sites and then downloaded by coordinators for filing to the Z-drive, a long-term network storage device. There are two main purposes for downloading photos from DASH: to maintain availability of the photos in case DASH becomes unavailable and to facilitate faster recall of photos because, even when DASH is working properly, photos can be recalled much more quickly from the Z-drive than from the website.

Downloading photos from DASH is fairly straightforward: instruct the website to create a .ZIP archive of an album, or subset thereof, and then download and unpack the archive. The problem with doing this is that DASH does not preserve photo descriptions. Photos unpacked from the .ZIP archive have filenames which, though they are largely influenced by the device that originally created them, are effectively random. The downloaded files do not have the descriptions attached to them at all. The coordinator who is performing the downloading and filing of photos must manually rename each individual photo file. This process is cumbersome, error-prone, and time-consuming.

The Photo Renamer simplifies and expedites this process by automatically matching photograph names with descriptions as defined by the webpage from which they were downloaded. In the simplest use case, a coordinator only has to instruct the program to load a single webpage file downloaded from DASH and then click the "Execute" button. In more complex cases with more exacting requirements the program allows granular control over the renaming of photos. Even so, once the program is instructed to proceed, the entire process takes about a third of a second per photo.

## Procedure Summary

Any web page displayed in a web browser is strictly an interpretation of structured, machine-readable text sent from a server. Therefore, when viewing a photo gallery on the DASH website, the array of photographs and their descriptions is described by a combination of

```
<a href=3D"https://d3a8fsy=
4z5uwny.cloudfront.net/PhotosAndDocuments/
3dbde5q6-7bc2-4f2a-815c-48abb4845=
0c3.JPG?Expires=3D1649334112&Signature
=3Dj5EWLC2Zmr0hGfEJAd~x7u93u2CjCB=
MeVe4pKHPLtTPcCffHNjSVkVhtOxdmf6v3tort~YMN
gXiaOSO~dQLqvuf4U5WMzPtk0Bu37O5Vr=
oBLt3t8spaZ9Rnca~S~m2UfQ6ifMHMmejPH8RymNzD
8N4wB1QzIqalBJ81w5-8Z4ZuKYUAopVcd=
1MjUx7kushUhhAoMNY5fXIfzXOuAZH7CZMIXPIi40o
xoru6oQRbH0q9r3-nhPp11PLKuFCgS2mX=
rAAa3-58YUrY5LK2HrJXLz5kOAXSzKz-P9dWR08H3i
025NkcL7424AxVg3VdMnzmE~4OvccMav4=
wtPjpbkEtL~Q__&Key-Pair-Id=3D000000000
00000" data-lightbox=3D"alb=
um" data-title=3D"<div><span><b>Photo
Description:</b>&nbsp;<span id=3D=
'span0_PhotoDescription'>front of house
</span></span></div><div><span><b>D=
ate Taken:</b>&nbsp;<span
id=3D'span0_DateTime'><i>No EXIF
Date</i></sp=
an></span></div><div><span><b>Date
Uploaded:</b>&nbsp;<span id=3D'span0=
_DateUploaded'>3/24/2022 9:16:11
AM</span></div>"
```

HTML and other standardized web scripts. The Photo Renamer program leverages this fact by reading the same text and, instead of displaying the described webpage, using it as a dictionary to match photo download addresses with photo descriptions.

Shown here is a fragment of the definition for a single photo in a DASH photo album web page after it has been downloaded. The relevant pieces of information extracted by the Photo Renamer are shown in red.

The Photo Renamer searches for an element whose class is "album\_photo" and, from there, finds the associated file location ("href") on the DASH server, the photo description, and the upload date.

In essence, the program is using the downloaded HTML file as an index, or a map, to the specific locations on the DASH server of the photos.

After extracting this information all that remains is to apply whatever description rules (capitalization, indexing, etc) are defined by the user and then download renamed copies to the local (or networked) file system.

## Procedure Detail

The user must navigate to their desired photo album in DASH. They must then instruct their web browser to download the currently displayed page as a “Webpage, Single File”. This causes a snapshot of the currently displayed web page to be downloaded immediately. When the browser saves the webpage, it preserves the source addresses of all of the photos which point to their locations on the DASH server.

The user then launches the Photo Renamer program and instructs it to load the saved web page. The Photo Renamer then reads through the downloaded web page and extracts all of the photo data as described in the “Procedure Summary” section.

Part of the function of the program is to modify the photo descriptions provided by DASH to provide uniformity. This is accomplished by taking the following steps, most of which can be skipped if the user wishes.

### 1. Remove Trailing Numbers *(optional)*

Descriptions that end with numbers, including parenthetical numbers, will have those numbers removed. This allows the program to identify photos that should be grouped together. For example:

Kitchen 5, Kitchen (04), Kitchen

These should all be in the same group because they all refer to the kitchen. Removing the trailing numbers allows the program to recognize this.

When the numbers are removed they are stored in such a way that later the program will recall that `Kitchen 5` wants to be indexed as the 5th photo in the series, `Kitchen (04)` wants to be the 4th, and `Kitchen` has no preference and can be assigned any index.

### 2. Correct Capitalization *(optional)*

This process is fairly straightforward: the first letter of each word is capitalized and all other letters are reduced to lower case.

### 3. Remove Invalid Characters *(mandatory)*

The following characters are removed from the description because they are not permitted in file names on some file systems:

#%&{ }\<>&?/\$!'\"':@+`|=

### 4. Remove Extra Whitespaces *(mandatory)*

Duplicate spaces between words are removed. Spaces at the beginning or end of the description are removed. When searching for files in the future, search programs can be (but aren't always) confounded by extraneous spaces.

## 5. Enforce Length Restrictions (*semi-optional*)

There are two absolute restrictions for description lengths that the user cannot override. If they are violated by any one photo, the program will refuse to rename any photos.

- The description, including any user-defined prefix and suffix, must be at least 7 characters long. This is to ensure that there are enough characters to uniquely identify each photo.
- The description including any user-defined prefix and suffix and its index, plus the length of the path of the folder into which the photo will be saved, must not exceed the file name length limit set by the operating system.

Beyond these, the user is able to specify their own maximum length if they wish. The program will automatically pare down the lengths of descriptions that are too long using the method of the user's choosing:

- Refuse - The program won't do anything about over-length descriptions itself, but also won't rename any photos until the problem is resolved.
- Warn - The program won't do anything about over-length descriptions itself, but will mark any photos whose descriptions are too long. The program will still execute renaming if the user instructs it to.
- Truncate - The program will chop down the three parts of the description until the total length is short enough, in this order: description, suffix, prefix. The program will still execute renaming if the user instructs it to.
- Drop Vowels - The program will strip out all vowels from the description, suffix, and prefix, then truncate as needed. The program will still execute renaming if the user instructs it to.
- Allow - The program will take no action to enforce length restrictions, aside from the two permanent rules previously mentioned.

## 6. Apply Indexes

The program will apply unique index numbers to the ends of all photos that belong to a group, such as in the previous example with photos named "Kitchen". The program will attempt to honor original indexes as described before.

The user can click on an icon next to any description that will immediately download the associated photo to a directory reserved for temporary files and then instruct the local operating system to open it.

Once the descriptions have been processed to the user's liking, including any manual changes the user may wish to make, the user can instruct the program to execute renaming. The program will execute downloads from all of the photos' addresses on the DASH server and copy them to the specified output directory, assigning file names equal to their descriptions. Unless instructed not to do so, the program will modify the files' creation dates to reflect the upload date provided by DASH.

For the user's convenience the program will delete the source HTML file unless instructed not to do so. The program will also delete any files in the temporary file directory. As a safety precaution, the program will not delete anything at all if it finds any subfolder, empty or otherwise, located in the temporary files folder. This prevents unlikely but not-impossible cases where the program might accidentally delete entire directory trees, which could be especially catastrophic on network drives.

### **Note about Automatic Downloading**

It is theoretically possible to have a program automatically download photos from the DASH server without the need to manually save a source HTML file. If the Photo Renamer program could pose as a normal user logging in to the DASH website and automatically navigate to the desired album and download its contents, the user would only have to provide their DASH credentials and point to the desired album and the program would do the rest. While this is entirely possible to implement, the Photo Renamer program was not designed to do this for the following reasons:

- The DASH website is deliberately designed to make this very difficult. Most websites not intended to be navigated programmatically are published obfuscated, and DASH is no exception. Programs that navigate obfuscated websites without the assistance of intentionally published APIs are fragile and subject to malfunction whenever the website changes in small or large ways.
- The amount of work required to implement this method would far outweigh the return of time savings. This implementation would require constant maintenance and would be unpleasant for end-users to utilize. The consequence of not using this method is that the user must perform a few extra clicks themselves.

## Notes & Attributions

The user's options are saved to a configuration file located in the same directory as the program executable. When the program launches it attempts to read from the configuration file. If the file does not exist, the program attempts to create one. Every time the Execute button is clicked the program attempts to overwrite the configuration file with the current options.

This program is written in Java and was originally developed using Java 17. It is provided with its source code so that it can be modified in the future as needed.

This program was originally conceived and created by Nicholas Harrell. Any unexpected program behavior, or requests for additional features, should be referred to Nicholas at [nharrell@duraclean-somd.com](mailto:nharrell@duraclean-somd.com).

The icons used in this program were created by Pixel Perfect and retrieved from [www.flaticon.com](http://www.flaticon.com). Some icons have been modified. This use of these icons is legal and royalty-free in accordance with the Terms of Service retrieved from flaticon.com on 20 March, 2022.